

FACTORS AFFECTING X HOSPITAL BANDUNG NURSES' COMPLIANCE WITH EARLY WARNING SCORE (EWS) ASSESSMENT IN 2025

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ABSTRACT

Vital signs are assessed using the Early Warning Scoring (EWS) scoring method in order to detect and avoid Code Blue incidents early. Respiratory rate, oxygen saturation, oxygen administration, systolic blood pressure, pulse, level of awareness, and temperature are examples of detection measures that are used to identify changes or worsening in patients prior to an emergency. Although early warning score (EWS) protocols are not yet at their best, compliance with EWS assessments is essential. Low adherence to EWS procedures, particularly with regard to clinical response, monitoring frequency, and measurement quality, is one of the primary drawbacks. The purpose of this study is to determine the variables affecting nurses' compliance with Early Warning Score (EWS) evaluation at RS X Bandung in 2025. 51 nurses who worked in the inpatient wards participated in this cross-sectional study, which used a descriptive analytical method. According to the study findings, 29 respondents (56.9%) were highly motivated to complete EWS evaluations, 31 respondents (60.8%) had efficient time management, 26 respondents (51%) had negative conduct, and 30 respondents (58.8%) did not comply with the EWS assessment. The results of the Chi-Square statistical test indicated that there was no significant correlation between behavior and EWS assessment compliance (p-value of 0.25 (> 0.05), that time management and EWS assessment compliance were significantly correlated (p-value of 0.042 (< 0.05), and that motivation and EWS assessment compliance were significantly correlated (p-value of 0.001 (< 0.05)). According to the results of the Binary Logistic Regression test, time management (p-value of 0.05 (< 0.05) and motivation (p-value of 0.002 (< 0.05)) had the greatest effects on EWS assessment compliance. This study suggests examining the influence on work, enhancing time management skills, and reviewing respondents' time management abilities. In order to improve both inner and extrinsic motivation, this study also suggests providing feedback on compliance accomplishments.

Keywords: EWS; Compliance; Affecting

Introduction

Ensuring patient safety is crucial in healthcare, both in general wards and in critical care units. The rapid detection of changes in vital signs enables prompt adjustments in the level of care. Several studies have shown that continuous monitoring of vital signs is essential for identifying patients at risk and facilitating timely interventions. Automated systems based on continuous monitoring of inpatients' vital signs combined with the Early Warning Scoring (EWS) system not only enhance patient safety but also have the potential to save healthcare practitioners' time, reduce errors, facilitate information sharing with relevant stakeholders for accurate decision-making, and lower costs (Pavithra Lakshman, 2025). Research conducted toward the end of the 20th century revealed the occurrence of adverse events and preventable deaths among hospitalized patients. The Early Warning Score (EWS) was proposed as a potential solution to predict clinical deterioration by utilizing measurable vital signs to monitor patients' health during hospitalization. These models identify patients at risk of deterioration—often defined as death or transfer to the intensive care unit. When a patient shows signs of deterioration, the EWS triggers an alert so that care can be escalated. Historically, EWS was implemented using paper-based observation charts; however, it has increasingly become integrated into electronic health record systems. EWS based on vital signs is now widely used daily in hospitals to identify clinically deteriorating patients (Stephen Gerry, 2020).

In hospital wards, patient monitoring typically consists of routine vital sign checks performed by nurses every 6 to 8 hours, supplemented by a subjective assessment of the patient's condition during nursing activities. In addition, the Early Warning Scoring (EWS) system is widely used to evaluate the risk of patient deterioration. The EWS is usually calculated by assigning points to a set of measurable vital signs, with the total score reflecting the patient's level of risk. The Early Warning Score is implemented as part of a rapid response system, which triggers clinical action or escalation of care when the score exceeds a predefined threshold. However, vital sign checks and the corresponding EWS assessments are often incomplete or not performed in a timely manner—particularly at night or when protocols require more frequent measurements for high-risk patients. Combined with the intermittent frequency of measurements, this may lead to undetected patient deterioration (Mathilde C. van Rossum, 2023).

Delays or failures in detecting deterioration in a timely manner have adverse effects on prognosis, morbidity, mortality, and healthcare utilization. Globally, the early recognition and prevention of patient deterioration have broad implications for reducing mortality and morbidity rates, lowering healthcare costs, and optimizing the allocation of scarce critical care resources. Preventive interventions are therefore necessary to address these challenges (Baneen Alhmoud, 2021).

Compliance with EWS assessment includes accuracy of scoring, monitoring frequency, and clinical response. Nurse compliance in conducting Early Warning Score (EWS) assessments is essential in providing nursing care to prevent patient emergencies such as cardiac arrest and respiratory arrest. Compliance with the Early Warning Score (EWS) assessment refers to the extent to which healthcare providers—particularly nurses—adhere to and apply the EWS assessment procedures according to established standards, as well as the factors that influence nurses' compliance in performing EWS assessments. At Hospital X Bandung, no research has yet been conducted on these factors. Therefore, the purpose of this study is to explore in depth “The Factors Influencing Nurses' Compliance in Early Warning Score (EWS) Assessment at Hospital X Bandung in 2025.”

Methods

This study employed a descriptive-analytic method with a cross-sectional approach, involving 51 nurses in inpatient wards to determine the relationship between the independent variables—behavior, time management, and motivation—and the dependent variable, namely nurses' compliance in assessing the Early Warning Score (EWS). The study also aimed to identify which variable had the most significant influence on nurses' compliance in conducting EWS assessments.

To identify the characteristics of respondents, a questionnaire consisting of eight statements was distributed, all of which had been tested for validity and reliability. The results of the validity test showed that the calculated r value was greater than the r table value (0.281), and the reliability test yielded a Cronbach's Alpha of 0.76, indicating that the instrument was reliable.

Setting and samples

This study aims to identify the factors that influence nurses' compliance in conducting Early Warning Score (EWS) assessments at Hospital X Bandung in 2025.

This research employs a descriptive-analytic method with a cross-sectional approach involving 51 nurses working in the inpatient wards.

Univariate Analysis

Univariate analysis was conducted to determine the frequency distribution of each variable.

Table 1. Frequency Distribution of Respondents' Characteristics

Variabel	Frekuensi (n = 51)	Persentase (%)
Kepatuhan		
Tidak Patuh	30	58.8
Patuh	21	41.2
Perilaku		
Negatif	26	51
Positif	25	49
Manajemen Waktu		
Kurang Efektif	20	39.2
Efektif	31	60.8
Motivasi		
Rendah	22	43.1
Tinggi	29	56.9

Based on Table 1, it was found that out of 51 respondents, the majority were non-compliant in performing EWS assessments according to protocol, totaling 30 respondents (58.8%). A total of 26 respondents (51%) demonstrated negative behavior, 31 respondents (60.8%) exhibited effective time management, and 29 respondents (56.9%) had high levels of motivation.

Bivariate Analysis

Bivariate analysis aimed to determine the relationship between the independent variables ; behavior, time management, and motivation—and the dependent variable, nurses' compliance with EWS assessment. The Chi-Square test was used with a significance level of 5%.

Table 2. Relationship Between Behavior and Compliance with EWS Assessment

Variabel	Kepatuhan Penilaian EWS (n= 51)				p-value
	Tidak Patuh		Patuh		
	n	%	n	%	
Perilaku					
Negatif	13	50	13	50	0.25
Positif	17	68	8	32	
Total	30	58.8	21	41.2	

Based on Table 2, the statistical test results showed that there was no significant relationship between behavior and compliance with EWS assessment, with a *p*-value of 0.25 (> 0.05).

Table 3. Relationship Between Time Management and Compliance with EWS Assessment

Variabel	Kepatuhan Penilaian EWS (n= 51)				<i>p-value</i>
	Tidak Patuh		Patuh		
	n	%	n	%	
Manajemen Waktu					
Kurang Efektif	8	40	12	60	0.042
Efektif	22	71	9	29	
Total	30	58.8	21	41.2	

Based on Table 3, the statistical test results showed that there was a significant relationship between time management and compliance with EWS assessment, with a *p*-value of 0.042 (< 0.05).

Table 4. Relationship Between Motivation and Compliance with EWS Assessment

Variabel	Kepatuhan Penilaian EWS (n= 51)				<i>p-value</i>
	Tidak Patuh		Patuh		
	n	%	n	%	
Motivasi					
Rendah	19	86.4	3	13.6	0.001
Tinggi	11	37.9	18	62.1	
Total	30	58.8	21	41.2	

Based on Table 4, the statistical test results showed that there was a significant relationship between motivation and compliance with EWS assessment, with a *p*-value of 0.001 (< 0.05).

Multivariate Analysis

This study employed multivariate analysis using Binary Logistic Regression to analyze and identify the most influential factors among the independent variables (behavior, time management, and motivation) on the dependent variable (compliance with EWS assessment).

Based on the Chi-Square test results, there was no significant relationship between behavior and compliance, with a p -value of 0.25 (> 0.05). However, there was a significant relationship between time management and compliance with EWS assessment, with a p -value of 0.042 (< 0.05), and between motivation and compliance with EWS assessment, with a p -value of 0.001 (< 0.05). Since all three variables had p -values less than 0.25, multivariate analysis using logistic regression was subsequently performed.

Table 5. Analysis of the Influence of Behavior, Time Management, and Motivation on Compliance with EWS Assessment

	Sig	Exp (B)	95% C.I	
			Lower	Upper
Step 1 ^a Perilaku	0.757	0.803	0.201	3.204
Manajemen Waktu	0.073	0.273	0.066	1.130
Motivasi	0.002	10.530	2.327	47.650

Based on Table 5, the behavior variable had a p -value of 0.757 (> 0.05), the time management variable had a p -value of 0.073 (> 0.05), and the motivation variable had a p -value of 0.002 (< 0.05). In the subsequent stage, the behavior variable (p -value = 0.757; > 0.05) was excluded from the next modeling process. Logistic regression analysis was then continued with the same procedure for the time management and motivation variables to examine the influence between these variables.

Table 6. Analysis of the Influence of Time Management and Motivation Variables on Compliance with EWS Assessment

	Sig	Exp (B)	95% C.I	
			Lower	Upper
Step 1 ^a Manajemen Waktu	0.054	0.258	0.065	1.025
Motivasi	0.002	10.734	2.388	48.257

Based on Table 6, the time management variable had a p -value of 0.054 (< 0.05) and the motivation variable had a p -value of 0.002 (< 0.05). In the next stage, the change in the Odds Ratio (OR) value on Exp(B) before and after the behavior variable was excluded from the model was found to be less than 10%.

Table 7. Comparison of Odds Ratio (OR)

	Sig	Exp (B)-1	Exp (B)-2	%
Step 1 ^a Manajemen Waktu	0.054	0.273	0.258	5%
Motivasi	0.002	10.530	10.734	-2%

Based on Table 7, it was shown that the most influential variable on compliance with EWS assessment was motivation, with a *p*-value of 0.002 (<0.05), compared to the time management variable with a *p*-value of 0.054 (<0.05). The results indicated that the Odds Ratio (OR) values were less than 10%. From this analysis, the final model showed that both the time management and motivation variables had OR values less than 10% and *p*-values less than 0.05.

Based on Table 7, respondents with high motivation had an Odds Ratio (OR) of 10.734, meaning that those with high motivation were 10.734 times more likely to be compliant compared to respondents with low motivation. Meanwhile, the Odds Ratio (OR) of 0.258 for time management indicates that respondents with effective time management were 0.258 times more likely to have effective time management compared to those with less effective time management.

Results and Discussion

The Relationship between Behavior, Time Management, Motivation, and Compliance with EWS Assessment

This study found that there was no significant relationship between behavior and compliance with EWS assessment, with a *p*-value of 0.25 (> 0.05). Behavior is defined as all activities or actions that can be directly or indirectly observed. According to Notoatmodjo (2020), behavior represents a person's response or reaction to a stimulus; a positive stimulus will elicit positive attitudes or behaviors, while a negative stimulus will lead to negative attitudes or behaviors. Conducting an EWS assessment is part of a nurse's responsibility when providing patient care. This activity can be observed daily as it is a mandatory procedure to monitor the patient's condition. Based on the researcher's observations, nurses consistently perform EWS assessments; however, this behavior does not necessarily guarantee the accuracy or appropriateness of the assessment performed. Therefore, such behavior may be considered positive—constructive, beneficial, and disciplined—or, conversely, negative. These findings differ from those reported by Armanto et al. (2024), who found a significant relationship between nurses' attitudes in documenting EWS and compliance, with a *p*-value of 0.015.

This study found a statistically significant relationship between time management and compliance with EWS assessment, with a *p*-value of 0.042 (< 0.05). Time management is the process of organizing activities chronologically to accomplish them in the most efficient way. To manage time effectively, individuals must possess or develop specific skills such as planning, identifying priorities, recognizing goals and objectives, creating an organized environment, and utilizing technology that facilitates or accelerates activities (Raj'a Nayef Zyoud, 2023).

Nursing care is a continuous 24-hour activity aimed at fulfilling patients' basic needs. Given the large number of tasks nurses must complete, it becomes crucial for them to manage their

time effectively in order to accomplish all responsibilities during their shifts. Effective time management helps reduce and structure workload, whereas excessive workload can hinder time management and decrease work productivity. This finding is consistent with research conducted by Bukhori et al. (2024), which demonstrated a significant relationship between nurses' workload and compliance with EWS implementation ($p = 0.001$).

This study found a statistically significant relationship between motivation and compliance with EWS assessment, with a p -value of $0.001 (< 0.05)$. Motivation is an internal (intrinsic) or external (extrinsic) drive or force that initiates, directs, and sustains a person's behavior to take action. Intrinsic motivation is considered a more sustainable and long-term form of motivation because it is driven by personal interest and values. Extrinsic motivation, on the other hand, can take various forms, such as rewards—for instance, receiving recognition for completing a task—or punishment, such as being sanctioned for failing to complete one. This theory suggests that individuals engage in activities to obtain rewards or avoid punishment. Both intrinsic and extrinsic motivation emphasize that behavior is controlled by its consequences, and that individuals tend to repeat behaviors that produce positive outcomes while avoiding those that result in negative outcomes (Ryan & Deci, 2020). In performing their duties and responsibilities—such as conducting EWS assessments—nurses are driven by both internal and external factors to carry out their work effectively. This finding is consistent with research conducted by Yulianti et al. (2024), which showed a significant relationship between motivation and nurses' compliance in documenting EWS, with a p -value of 0.020 .

The Influence of Behavior, Time Management, and Motivation on Compliance with EWS Assessment

This study found that the most influential factor affecting compliance with EWS assessment was motivation, with a p -value of $0.002 (< 0.05)$, compared to the time management variable, which had a p -value of $0.054 (< 0.05)$. Based on the discussion above, it can be concluded that intrinsic and extrinsic motivation represent two distinct approaches to understanding the driving factors behind human behavior.

Intrinsic motivation focuses on the satisfaction and enjoyment derived from performing an activity for its own sake, without the need for external rewards. Individuals are naturally inclined to pursue tasks that align with their personal interests and values, fostering a genuine desire to learn and perform. In contrast, extrinsic motivation emphasizes external factors—such as rewards or punishments—as triggers for behavior. Individuals driven by extrinsic motivation are motivated by external incentives, such as recognition or rewards, to achieve desired outcomes.

While both forms of motivation play important roles in shaping human behavior, intrinsic motivation is often associated with sustained interest, creativity, and deeper engagement. Extrinsic motivation, however, may lead to temporary compliance driven by external pressures. Therefore, maintaining a balance between intrinsic and extrinsic motivators is essential in developing a holistic and sustainable approach to improving nurse compliance with EWS assessment.

Conclusion

The study revealed that there was a significant relationship between motivation and compliance in EWS assessment, with a p -value of 0.001 (< 0.05). There was also a significant relationship between time management and compliance in EWS assessment, with a p -value of 0.042 (< 0.05). However, there was no significant relationship between behavior and compliance in EWS assessment, with a p -value of 0.25 (> 0.05).

Among the independent variables, motivation was found to have the strongest influence on nurses' compliance in EWS assessment ($p = 0.002$, < 0.05), followed by time management ($p = 0.054$, < 0.05).

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